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WARTIME JOB OF GIN WORKERS IS TO PERFECT GINNING

Cotton producers now have a greater responsibility to the Nation than ever before in connection with the harvesting and handling of their cotton in a manner to provide increased quantities of smoothly ginned, high grade cotton needed in the war program. To attain this goal, they should impress upon cotton pickers the need for more care in these important farm operations. They can give these tasks much closer attention by personally checking the results obtained, and by following practices that will lessen the ginner's burden. These responsibilities on the part of producers are very significant but they are restricted to only a few major activities while the responsibilities of gin owners and operators are numerous and far-reaching.

Along with a few well-known and important practices that influence ginning quality, gin workers need to employ many other minor precautionary measures that will not only contribute to better ginning quality, but also to more efficient ginning and increased life of ginning machinery. It goes without saying that gin workers, like workers in other industries vital to our war program, are aware of the fact that there is a need for performing their jobs with a maximum of efficiency in times like these.

Gin Managers' Responsibility

The responsibilities of gin owners or managers need some elaboration. The gin owner or manager should keep his gin in first-class condition, should have suitable instruments and tools for same, and should see to it that the best operating practices are employed in ginning the producers' crops. It is to his interest as well as to that of his patrons to employ workers who are thoroughly skilled in the jobs assigned to them. When all such ginning precautions necessary for improved ginning have been employed and the ginning job is still deficient, the gin manager should impress upon the grower the need for better harvesting to provide the grades to meet current mill requirements.

Steps to follow in determining whether gin damage is due to faulty methods of harvesting cotton or to the machinery and its operation are described in U. S. Department of Agriculture Leaflet 169 1/. Gin managers should bear in mind and emphasize to their patrons that gin machinery possesses definite limitations with respect to its effectiveness in handling carelessly harvested cotton. Present-day drying, cleaning, and extracting machinery--effective as it is--cannot put roughly harvested, trashy, or wet cotton in such condition that it will gin out a sample equal in quality of fiber to that ginned from clean cotton which has been picked by hand under relatively dry conditions.

1/ All bulletins to which reference is made in this article may be obtained from the State Gin Extension Specialists or the U. S. Cotton Ginning Laboratory, Stoneville, Miss.

Other important and specific facts that should guide gin managers in their efforts to preserve or improve the quality of the lint and seed are:

(1) Artificial drying of green and damp cotton will greatly improve the grade of the lint and the storage properties of the seed. The drying process also aids in cleaning trashy cotton and ultimately providing cleaner lint and seed. It is necessary that certain precautions with respect to drier operation be observed in order to obtain these benefits without injuring the staple.

(2) Extracting processes, such as those incorporated in feeders of the type now widely used in the Cotton Belt, are essential to the improvement of the grade of trashy or weather-damaged cotton.

(3) Loose seed roll operation is basic to smooth ginning. Ginning the seed so close with dense seed rolls as to cause particles of seed coat fragments to get into the lint will so lower the grade and value of the lint as to more than offset the gain from extra weight put into the bale. If gin saws are in good condition, are of full diameter, and are operated at from 600 to 700 revolutions per minute, and if an effective doffing system is used, the seed can be well cleaned even with very loose seed rolls, and smoothly ginned lint can be produced.

(4) A classification or examination of the samples at regular intervals will reveal the quality of the ginning, and provide an indication of the underlying faults--whether they are due to farm harvesting practices or to ginning equipment or methods. Producers and ginners will find it profitable to take time to examine their samples, for much loss can be avoided by tracing gin damage to its source and promptly making the corrections needed.

(5) Good, clean bagging, and ties free from crankcase oil and other refuse together with the use of a type of marking ink that will bleach out in the mill and not stain the goods manufactured from the cotton will protect the contents of the bale and prevent heavy losses to producers. The benefits from bale protection against weather damage are well known. In this period of transportation delays and tire shortages, it is more important than ever that bales be protected from the weather.

(6) The use of certain operating and testing equipment--such as simple gauges, speed indicators, and special caliper tools for vital gin parts, have proved to be of inestimable value and necessary assistance to ginners in obtaining better quality and higher efficiency. (These items are discussed in a processed leaflet of the U. S. Department of Agriculture - "Cotton Gin Operating and Testing Equipment" - April 1939.)

Hand in hand with their previously discussed responsibilities, gin managers should not overlook the importance of spending enough time on the job with each employee to impress upon him the serious need for more efficiently handling his duties, and better acquainting him with precautionary measures to be followed in obtaining smooth and efficient ginning. Gin managers obviously are charged with the responsibility of providing ample safety measures in the gin plant, not only to protect employees but also to prevent costly breakdowns. Adequate lighting should be maintained at all times, and as much of this as possible should come from natural sources to conserve electric power.

Scope of Gin Stand Operators' Work

Of all the tasks in a cotton gin, the gin stand attendant's job has the greatest influence on quality and efficiency of ginning. In gin operation, one of his most important duties should be to determine whether or not a load of cotton is in suitable condition for ginning, especially if the gin plant does not employ a paid suction operator. Some important precautions in providing good ginning which he should observe are:

- (1) Make sure that the suction operator feeds the incoming seed-cotton to the ginning outfit at a rate that will neither cause chokages in separators and cleaning and drying equipment nor a sizable overflow of cotton; and then refrain from passing the overflow cotton through overhead drying and cleaning equipment so many times that the fibers are injured.
- (2) Operate cotton driers with moderate temperatures, or low enough to preserve fiber quality along with improving grade because better results will be obtained by using more air and less heat than by operating with inadequate volumes of air at high temperatures. (Procedure to follow in the operation of cotton driers is given in U. S. Department of Agriculture Leaflet 181 - "Drying Seed Cotton.")
- (3) Keep separators, cleaners, extractors, and feeders adjusted properly, and operating smoothly by inspecting them daily to keep down accumulations of cotton and foreign matter and to learn if repairs are needed. (A general guide for repairing and modernizing gin machinery is given in U. S. Department of Agriculture Leaflet 216 - "Cotton Gin Maintenance.")
- (4) Operate gin stands with loose rolls at all times, and see that all stands are in good condition; feed uniformly and employ seed rolls of comparable density.
- (5) Make daily check on the condition of gin saws and ribs and recondition them when necessary to provide smoother and more efficient ginning.
- (6) Observe the settings of saws and ribs daily and keep the saws centered between the ribs and properly trained, to prevent damage to them and to the cotton and seed.
- (7) Operate the gin stands with the seed boards or fingers so adjusted as to allow free passage of the seed from the roll box to prevent "close" ginning, chipping of seed, and addition of linter fibers to lint, because seed coat fragments and linter fibers in the lint adversely affect the grade and spinning quality of the cotton. All linter fiber should be left on the seed for removal at oil mills for manufacture into smokeless powder.
- (8) Dump seed rolls regularly and often enough to eliminate trash rolls from the gin breast, and at the same time remove clinging cotton and sticks and stems from the ginning rib spaces to avoid gin damage and gin fires.
- (9) In case of brush gins, inspect the brushes at least every week in an effort to keep them in proper condition, balanced, and correctly set in relation to the saws.

(10) In case of air-blast gins, use a pressure gauge as an accurate guide in regulating the control valve on the air blast and in providing adequate air pressure for doffing the lint from the saw and for delivering the lint to the condenser in a smooth manner.

(11) Keep picker rollers in good shape, and positioned to suit the condition of the cotton, or only close enough to the huller ribs to prevent loss of well-matured locks of cotton.

(12) Dump accumulations of burs and sticks from huller fronts as fast as they build up, to prevent bale plating of clean cotton and contamination of seed.

(13) Check moting action of gin stands daily, and adjust mote boards in a manner to throw out as much foreign matter and as many motes and "naps" as possible without expelling usable fiber.

(14) Keep trash out of the seed by disposing of it as fast as it is removed from the cotton, so that higher grade seed will be delivered to oil mills for producing clean linters needed in the manufacture of high grade smokeless powder.

(15) Make daily clean-up of all accumulations of lint, foreign matter, and grease that are potential fire hazards.

(16) Make certain that all cotton from one wagon or truck is ginned before turning the press to receive cotton to be ginned from the next load, to prevent bale plating.

(17) Check tension of drive belts and pulley alignments daily. Shorten slack belts so that chokages and breakdowns which impair efficiency of operation and sometimes damage the cotton will be reduced, and repair parts and belt replacements will be held to a minimum.

(18) Make wise use of oil and grease in lubricating moving parts of machines to prolong the life of the machinery, conserve parts, reduce the number of breakdowns, and lessen the fire hazards.

(19) Inspect lint flue and condenser daily, and remove accumulations of cotton or foreign matter that might ultimately be passed on with good cotton and lower its quality.

(20) Take all precautions necessary to produce uniform density bales, including periodic adjustment of lint flue-diversion valve.

(21) When saving planting seed for producers, take all precautions necessary to prevent mixing of different varieties including the cleaning of all machinery units handling seed cotton as well as cottonseed. (A guide for inspecting and cleaning cotton ginning equipment is given in U. S. Department of Agriculture Leaflet 217 - "Cotton Ginning for Pure Seed Preservation.")

(22) Examine ginned lint daily in an effort to appraise quality and be assured of smooth ginning. (A procedure to follow in detecting the source of gin damage is given in U. S. Department of Agriculture Leaflet 169 - "Preventing Gin Damage to Cotton.")

(23) When rough ginning occurs in spite of best operating practices, show samples to producer involved and explain the causes that are traceable to the condition of the cotton, and encourage the adoption of better harvesting and handling practices on the farm.

Cotton Suction Feeders' Job

The job of feeding the suction at gins involves far more than merely the task of unloading cotton from the wagons or trucks. Some important duties of the suction feeder in unloading the cotton are as follows:

(1) Check condition of the cotton at several places in the load and if found to be too wet for good ginning even with a gin equipped with a drier, notify the gin stand operator so that if the producer insists on ginning the cotton instead of drying it in storage, the gin operator may exercise unusual care in drying and ginning.

(2) Operate suction telescope in such a way that cotton varying in condition and quality may be composited and mixed to make for greater uniformity in quality.

(3) Feed the cotton at a moderate and uniform rate after filling all gin feeder chutes, so that no more cotton is placed on the overflow than necessary.

(4) Feed overflow cotton to the gin stands no faster than it can be ginned, so that quality damage from repeated passage of the cotton through overhead cleaning and drying equipment is avoided.

(5) Be on the lookout for matches, and other articles left by pickers in the cotton, to prevent fires and damage to machinery.

Press Operators' Duties

The manner in which press attendants perform their work is important in providing good packaging. Their duties, in addition to dressing the press and tying out bales, include a number of tasks that require close attention. Well-known precautionary measures that they should follow include:

(1) Turn the press promptly when the ginning of a bale is complete, to avoid mixture of lint from different kinds of cotton and thus prevent bale plating.

(2) Make periodic adjustments in kickers and lint slide, to insure uniformly packed bales, and to prevent the pressing of "rolling" bales which contribute to difficulties in compression as well as to compress cutting.

- (3) Make sure that trumper is not in motion when turning the press, to prevent breakdowns.
- (4) Run trumper all the way down on lint containing fire to smother the fire.
- (5) Remove accumulated lint from top of trumper at all times to prevent mixing of lint.
- (6) Keep all glands and packing in overhead trampers and rams free from leaks so that oily drips or water may not fall into the cotton or cotton press boxes.
- (7) Make the most compact bales of greatest density possible without danger to the press, to conserve transportation space.
- (8) Press out uniform density bales and exercise care in placing the bagging on bales to insure neat appearing bales.
- (9) Make up mixtures of marking ink of the type that will easily bleach out at mills so that goods manufactured from the cotton will not be spotted.
- (10) Keep bales on platform or under shelter so that they will not come in contact with wet or muddy ground and be damaged.

Work of Cotton Seed Loaders and Haulers

It is more important than ever before that cotton seed be handled carefully to avoid contamination by dirt and water. In loading cotton seed in railroad cars or motor trucks, the workers should give attention to at least these items:

- (1) Keep wet seed from being mixed with dry seed in order to avoid additional deteriorations
- (2) Exercise care in salvaging seed spilled on the ground in loading so that dirt is not included with the salvaged seed.
- (3) Report to the gin manager at all times the location of any damaged seed that might contaminate good seed stored in the same space.

Other Gin Workers' Contributions

While the operators of steam plant and diesel units have definite responsibilities in keeping the power units operating efficiently, about the only way in which their duties relate to producing better ginning quality is in the matters of dependable, constant speed and operating and caring for the heating system for cotton driers. In the case of boilers as a source of heat, the operator of the power unit is obliged to see that uniform steam pressure is

maintained so that the gin stand operator can be assured of better control of the drying air temperature. He should also keep the radiator coils vented in order to maintain constant temperatures in the drier.

The weigher of the incoming seed cotton should examine the cotton, and prevent the ginning of wet cotton by routing it to storage, and thus avoid much rough ginning. The weigher of the ginned bales can give close attention to bale marking, handling and storage, and, like the press operators, prevent certain types of damage to the cotton. He might even be qualified to examine ginned samples and keep the gin stand operator informed in regard to quality of ginning.

With the gin owner or manager coordinating the activities of each worker in the gin, and paying closer attention to the manner in which all jobs in the gin are being performed, and adequately coping with the problems as they develop in the face of shortages of equipment and trained workers, better ginning will unquestionably be the reward. These efforts will help a great deal in meeting the cotton and cottonseed quality requirements in 1942 and consequently contribute directly to the success of the war program. In addition to turning out more useful bales of cotton for this program, the exercise of special care in harvesting and ginning cotton will go a long way toward increasing the value of the 1942 crop of cotton and cottonseed.

